



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/632,371	08/01/2003	Sun-Tae Jung	5000-1-415	4167

7590 07/20/2006

Steve S. Cha, Esq.  
CHA & REITER  
9TH FLOOR  
411 HACKENSACK AVE.  
HACKENSACK, NJ 07601

EXAMINER

CURS, NATHAN M

ART UNIT PAPER NUMBER

2613

DATE MAILED: 07/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/632,371	<b>Applicant(s)</b> JUNG ET AL.	
	<b>Examiner</b> Nathan Curs	<b>Art Unit</b> 2613	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 August 2003.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claim 10 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claim 10, the specification discloses the multiplexer and the taps integrated on a substrate, but does not disclose a demultiplexer at all for the embodiment corresponding to claims 6-10.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant Admitted Prior Art ("AAPA") (specification fig. 1 and page 1, line 19 to page 4, line 20) in view of Yang (US Patent Application Publication No. 2002/0163690).

Regarding claim 1, AAPA discloses a wavelength-division-multiplexing system (specification fig. 1 and page 1, line 19 to page 4, line 20) comprising: an attenuation section for

Art Unit: 2613

attenuating input signals according to a compensation signal in order to compensate the intensity deviation of each channel in the semiconductor-amplification section (fig. 1, element 110); a multiplexer for multiplexing a plurality of signal outputs from the semiconductor-amplification section (fig. 1, element 120); an optical-detection section for splitting a part of the multiplexed optical signals from the multiplexer, for demultiplexing the split optical signals into a plurality of channels, and for converting each of the demultiplexed channels into corresponding electric signals (fig. 1, element 130); and, a control section generating the compensation signal according to a comparison result of each converted electric signal to a predetermined reference intensity (fig. 1, element 140). AAPA does not disclose a semiconductor-amplification section for amplifying input signals according to a compensation signal in order to compensate the intensity deviation of each channel. Yang discloses a WDM system including means for individually attenuating or amplifying the signal strength of individual wavelengths using a semiconductor-amplification section (fig. 3 and paragraphs 0046-0050 and 0053). It would have been obvious to one of ordinary skill in the art at the time of the invention to replace the attenuation section of AAPA with a semiconductor-amplification section, in order to provide the option of amplifying individual channel levels in addition to the options of attenuating or not changing individual channel levels, as needed for each channel for optimum gain spectrum, as taught by Yang (paragraphs 0009-0012).

Regarding claim 2, the combination of AAPA and Yang discloses a wavelength-division-multiplexing system according to claim 1, wherein the optical-detection section comprises: a tap for splitting the intensity of the multiplexed optical signal outputs from the multiplexer (AAPA: fig. 1, element 131); a demultiplexer for demultiplexing a part of the optical signals split from the tap into a plurality of channels (AAPA: fig. 1, element 132); and, a plurality of photo diodes,

Art Unit: 2613

arranged in a one-to-one correspondence with the demultiplexed channels, for converting each of the channels to electric signals (AAPA: fig. 1, element 133).

Regarding claim 3, the combination of AAPA and Yang discloses a wavelength-division-multiplexing system according to claim 1, wherein the multiplexer is made of a multi-layer, thin-film type of WDM filter (AAPA: page 2, lines 19-23).

Regarding claim 4, the combination of AAPA and Yang discloses a wavelength-division-multiplexing system according to claim 1, wherein the multiplexer is made of a Fiber Grating (AAPA: page 2, lines 19-23).

Regarding claim 5, the combination of AAPA and Yang discloses a wavelength-division-multiplexing system according to claim 2, but does not explicitly disclose that the multiplexer, the tap, and the demultiplexer is integrated on a substrate made from silica material. However, the office takes official notice that planar Lightwave WDM multiplexers/demultiplexers and optical taps were well known at the time of the invention. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to integrate the WDM multiplexer, demultiplexer and optical tap by way of a planar lightwave circuit, to provide the benefits of small size and mass production.

5. Claims 6-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA (specification fig. 1 and page 1, line 19 to page 4, line 20) in view of (Yang US Patent Application Publication No. 2002/0163690), and further in view of Barozzi et al. ("Barozzi") (US Patent No. 6941079).

Regarding claim 6, AAPA discloses a wavelength-division-multiplexing system (specification fig. 1 and page 1, line 19 to page 4, line 20) comprising: an attenuation section for attenuating input signals according to a compensation signal in order to compensate the

intensity deviation of each channel in the semiconductor-amplification section (fig. 1, element 110); a multiplexer for multiplexing a plurality of signal outputs from the semiconductor-amplification section (fig. 1, element 120); an optical-detection section for splitting a part of the multiplexed optical signals from the multiplexer, for demultiplexing the split optical signals into a plurality of channels, and for converting each of the demultiplexed channels into corresponding electric signals (fig. 1, element 130); and, a control section generating the compensation signal according to a comparison result of each converted electric signal to a predetermined reference intensity (fig. 1, element 140). AAPA does not disclose a semiconductor-amplification section for amplifying input signals according to a compensation signal in order to compensate the intensity deviation of each channel. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine Yang with AAPA as described above for claim 1. The combination of AAPA and Yang does not disclose an optical detection for splitting each of the channel outputs. Barozzi et al. discloses WDM tilt control where individual channels are tapped in a tap array, converted to electrical signals and monitored, after both WDM demultiplexing and tilt adjustment, for use in controlling tilt adjustment (figs. 2 and 3 and col. 3, line 62 to col. 4, line 61). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify AAPA to detect individual channel levels using a tap array and photodetectors after the channels are initially demultiplexed and adjusted, in order to provide the benefit of eliminating the volume and cost of the second demultiplexer.

Regarding claim 7, the combination of AAPA, Yang and Barozzi discloses a wavelength-division-multiplexing system according to claim 6, wherein the optical-detection section comprises: a plurality of taps for splitting each channel outputs from the semiconductor-amplification section, for outputting one part of each split-channel output to a corresponding photodiode, and for outputting the other part of each split-channel output to the multiplexer

Art Unit: 2613

(AAPA: fig. 1 and Barozzi: fig. 3, element 112, as applicable to the combination); and, a plurality of photo diodes, arranged in a one-to-one correspondence with each channel output, for converting each of the channel outputs into corresponding electric signals (Barozzi: fig. 3, elements 116 as applicable to the combination).

Regarding claim 8, the combination of AAPA, Yang and Barozzi discloses a wavelength-division-multiplexing system according to claim 6, wherein the multiplexer is made of a multi-layer, thin-film type of WDM filter (AAPA: page 2, lines 19-23).

Regarding claim 9, the combination of AAPA, Yang and Barozzi discloses a wavelength-division-multiplexing system according to claim 6, wherein the multiplexer is made of a Fiber Grating (AAPA: page 2, lines 19-23).

Regarding claim 10, the combination of AAPA, Yang and Barozzi discloses a wavelength-division-multiplexing system according to claim 7, but does not explicitly disclose that the multiplexer and the taps are integrated on a substrate made from silica material. However, the office takes official notice that planar lightwave WDM multiplexers and optical taps were well known at the time of the invention. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to integrate the WDM multiplexer and optical taps by way of a planar lightwave circuit, to provide the benefits of small size and mass production.

### ***Conclusion***

6. Any inquiry concerning this communication from the examiner should be directed to N. Curs whose telephone number is (571) 272-3028. The examiner can normally be reached on M-F (from 9 AM to 5 PM).

Art Unit: 2613

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan, can be reached at (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (800) 786-9199.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://paired.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



JASON CHAN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600